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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,926	01/16/2002	Jeffrey R. Sampson	2003309-0027 (Agilent 10	1042

7590 07/29/2004

AGILENT TECHNOLOGIES, INC.
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EXAMINER

TUNG, JOYCE

ART UNIT	PAPER NUMBER
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1637

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,926

Applicant(s)

SAMPSON, JEFFREY R.

Examiner

Joyce Tung

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12.05.2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-143 is/are pending in the application.
- 4a) Of the above claim(s) 36-66 and 102-143 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 67-101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02052004. + 4/22/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1637

DETAILED ACTION

The applicant's response filed February 5, 2004 to the Office action has been entered. Claims 1-143 are pending.

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-35 and 67-101 in the reply filed on February 5, 2004 is acknowledged.
2. Claims 36-66, and 102-143 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Groups II-IV, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on February 5, 2004.

Claim Objections

3. Claim 4 is objected to because of the following informalities: the phrase "stranded RNA" might be typographic error. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-35 and 67-101 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- a. Claims 1-35 and 67-101 are vague and indefinite because of the phrase ♦

"The two pools" in claims 1 and 67. It has no antecedent basis.

Art Unit: 1637

- b. Claims 12-13, 16-17, 25-26, 82-83, 86-87, 95-96 are vague and indefinite because of the phrase "ionic flow blockage". It is unclear what is the definition of the phrase in the specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-34 and 67-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Sampson et al. (6,054,274, issued Apr. 25, 2000).

Baldarelli et al. disclose a method for sequencing nucleic acid polymer. The description of the method of Baldarelli et al. as listed in claims 1-24 (See Abstract and column 23-24, claims 1-14). Modified base are available including methylated bases (See column 8, lines 44-45). The condition should be to avoid secondary structure in the polymer (See column 8, lines 53-54) using single stranded nucleic acid (See column 8, lines 57-59).

Baldarelli et al. do not disclose using a circular template and modified nucleotide that reduces secondary structure in the nucleic acid molecule.

Sampson et al. disclose a method for amplifying the signal of target nucleic acid sequence analyte using rolling circle replication (See the Abstract). The oligonucleotide contains modified nucleotide (See column 4, lines 24-27). Sampson et al. also indicate that the inclusion of non-standard A-G and G-A base pairs within the given sequence

Art Unit: 1637

context of the stem structures results in the complementary circular DNA template not having any predicted stable secondary structure. (See column 9, lines 15-18).

One of ordinary skill in the art would have been motivated to modify the method of Baldarelli et al. by applying the circular template and modified base as taught by Sampson et al. because as stated by Sampson et al. the inclusion of non-standard A-G and G-A base pairs within the given sequence context of the stem structures results in the complementary circular DNA template not having any predicted stable secondary structure (See column 9, lines 15-18) and the condition of the method of Baldarelli et al. should be to avoid secondary structure in the polymer (See column 8, lines 53-54) using single stranded nucleic acid (See column 8, lines 57-59). Thus, it would have been prima facie obvious to apply the circular template and modified nucleotide to the method of Baldarelli et al. to make the instant invention form sequencing nucleic acid.

8. Claims 35 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldarelli et al. (6,015,714, issued Jan. 18, 2000) in view of Sampson et al. (6,054,274, issued Apr. 25, 2000) as applied to claims 1-34 and 67-100 above, and further in view of Thorp et al. (5,871,918, issued Feb. 16, 1999).

The references of Baldarelli et al. and Sampson et al. do not disclose analyzing nucleic acid by electron tunneling.

Thorp et al. disclose a method of detecting a nucleic acid by using electron tunneling (See column 9, lines 30-55). The method may be used in a variety of applications, including DNA sequencing (See the Abstract).

Art Unit: 1637

One of ordinary skill in the art would have been motivated to modify the method of Baldarelli et al. by applying electron tunneling as taught by Thorp et al. since the electron tunneling is applied to DNA sequencing. It would have been prima facie obvious to apply to the method of Baldarelli et al. to make the instant invention for sequencing DNA.

Summary

9. No claims are allowable.

Art Unit: 1637

10. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Joyce Tung whose telephone number is (703) 305-7112.


The examiner can normally be reached on Monday-Friday from 8:00 AM-4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at (703) 308-1119 on Monday-Friday from 10:00 AM-6:00 PM.

Any inquiries of a general nature or relating to the status of this application should be directed to the Chemical/Matrix receptionist whose telephone number is (703) 308-0196.

11. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Art Unit 1637 via the PTO Fax Center located in Crystal Mall 1 using (703) 305-3014 or 308-4242. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Joyce Tung 丁丁
July 15, 2004


KENNETH R. HORLICK, PH.D.
PRIMARY EXAMINER

7/26/04